



A.D. 1861, *6th August.* N^o 1955.

S P E C I F I C A T I O N

OF

ALCIDALIS AUGUSTE ROMAIN
DAMOISEAU.

APPARATUS FOR DRAWING BLOOD, &c.

L O N D O N :

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A.D. 1861, 6th AUGUST. N° 1955.

Apparatus for Drawing Blood, &c.

LETTERS PATENT to Alcidalis Auguste Romain Damoiseau, Manufacturer, of Paris, France, for the Invention of "IMPROVEMENTS IN APPARATUS FOR DRAWING BLOOD OR OTHER FLUIDS FROM THE HUMAN OR ANIMAL BODY."

Sealed the 24th October 1861, and dated the 6th August 1861.

PROVISIONAL SPECIFICATION left by the said Alcidalis Auguste Romain Damoiseau at the Office of the Commissioners of Patents, with his Petition, on the 6th August 1861.

I, ALCIDALIS AUGUSTE ROMAIN DAMOISEAU, Manufacturer, of Paris, France,
5 do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS FOR DRAWING BLOOD OR OTHER FLUIDS FROM THE HUMAN OR ANIMAL BODY," to be as follows:—

The Invention has reference to the drawing of blood or other fluids from the human or the animal body by means of an apparatus constructed in such
10 manner as to allow blood or other fluid to be drawn from any part of the body previously scarified, or having an exploratory needle introduced therein, and covered in both cases with a cupping glass connected by a pipe with a pneumatic or an exhaust air pump, or with any other suitable apparatus in which a suitable partial vacuum is formed or may be kept up during the operation,
15 while by means of a cock or other suitable contrivance the air may alternately be sufficiently exhausted from the cupping glass, and again introduced therein, and thus cause an alternate lifting and depressing, or extending and contracting of the scarified part of the skin, or an up-and-down motion of the

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blood or other liquid in the interior of the tube of the exploratory needle to take place, and thus prevent any coagulation or choking of the said tube or scarified openings, thereby allowing the blood or other liquid easier to pass through the said tube or through the said scarifications of the skin than when only a continuous sucking or exhausting of the air from the cupping glass was 5 to take place.

In practice, I prefer to make use of a double-acting pneumatic or air-exhausting pump, connected by suitable elastic pipes with the air underneath the cupping glass, this latter being applied in the usual manner to that part of the body from which blood or other liquid is to be drawn off, the skin of 10 which part having been previously scarified or an exploratory needle introduced therein, provision being made for allowing alternately of drawing off a sufficient quantity of the air contained in the cupping glass, and afterwards to cause a sufficient quantity of air to enter therein.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed 15 by the said Alcidalis Auguste Romain Damoiseau in the Great Seal Patent Office on the 6th February 1862.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ALCIDALIS AUGUSTE ROMAIN DAMOISEAU, Manufacturer, of Paris, France, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters 20 Patent, bearing date the Sixth day of August, in the year of our Lord One thousand eight hundred and sixty-one, in the twenty-fifth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Alcidalis Auguste Romain Damoiseau, Her special licence that I, the said Alcidalis Auguste Romain Damoiseau, my executors, administrators, and 25 assigns, or such others as I, the said Alcidalis Auguste Romain Damoiseau, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle 30 of Man, an Invention for "**IMPROVEMENTS IN APPARATUS FOR DRAWING BLOOD OR OTHER FLUIDS FROM THE HUMAN OR ANIMAL BODY,**" upon the condition (amongst others) that I, the said Alcidalis Auguste Romain Damoiseau, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and 35 ascertain the nature of the said Invention, and in what manner the same

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was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Alcidalis Auguste Romain Damoiseau, 5 do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

These improvements relate to apparatus for drawing from the human or animal body blood or other fluids, such as serosities, milk, the liquid contained 10 in abscesses or other parts, and they consist in abstracting such fluids or liquids from the body by applying to the skin (previously scarified or non-scarified according as will be judged necessary) of that part of the body from which the said liquids are to be abstracted a cupping glass or glasses, connected in such manner to any suitable air pump or other air-exhausting apparatus for 15 allowing to form in the said glass or glasses a partial vacuum of sufficient intensity for causing the said liquid to be drawn into the said cupping glass or glasses, the air-exhausting apparatus being arranged in such manner that the air is alternately partially exhausted from the glass or glasses, and afterwards in sufficient quantity again introduced therein for causing an alternate lifting and 20 depressing of the skin in the glass ; by which up-and-down motion of the skin this latter is alternately extended and contracted, thereby preventing its pores or the scarifications made in it, or the hollow part of an exploring needle introduced through this part of the skin, of becoming choked up by the blood or other liquid in passing through these capillary orifices, and which alternate 25 exhausting of the air, and partly re-introducing of the same under the cupping glass, forms the main principle or characteristic conspicuous feature of my Invention, so much so that any air pump or other air-exhausting apparatus by means of which such alternate exhausting of the air, and partly re-introducing of the same under a cupping glass or glasses applied to the human or animal 30 body would be effected for the purposes of drawing off therefrom blood, milk, serosities, or other liquid or liquids, may be considered as forming part of my Invention, whatever may otherwise be the general arrangement of the apparatus, or of parts thereof ; thus, for instance, an ordinary air pump properly connected to the cupping glasses would have been so imperfectly con- 35 structed as to leave, for instance, a vent or opening for the air to pass through between the surface of the piston and that of the cylinder in such manner, that after each piston stroke or partial exhausting of the air from under the cupping glass, part of the air would be allowed again to re-enter into the said glass. Such apparatus might, though in a clumsy and rather imperfect

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manner, serve for the purpose of obtaining the required alternate lifting and depressing of the skin under the cupping glass, and, consequently, for drawing blood or other liquid from the body to which the glass would have been applied for that purpose. If, consequently, I give hereunder the description of an apparatus I hitherto made use of for the above-mentioned purposes, it 5 is merely to offer an illustration of one of the very many mechanical arrangements that may serve for obtaining the desired effect; but I wish it to be clearly understood that I do not in the least intend to restrain or restrict myself to the use of this apparatus, or of any modification thereof.

In the annexed Drawings, Fig^e. 1 represents an elevation view on a working 10 scale of the apparatus; the Figs. 2 & 3 respectively show, on a reduced scale, an elevation and a top view of a modification thereof; whereas the remainder of the Figures represent various views of detached parts; in all these Figures corresponding parts are marked by the same letters of reference.

The apparatus consists of a double-barrelled air pump, the barrels or 15 cylinders A of which are fixed in a horizontal (as in Fig^e. 1), or in a vertical position (as in Fig^e. 2), on a bed plate B and standards B¹. In the arrangement shown in Fig^e. 1, the pistons D are connected together by a link G and by means of the lever F, having its fulcrum in *f*, and properly connected to the link G, the said pistons receive a horizontal reciprocating 20 motion; whereas, in case the cylinders are situated vertically, as shown in Fig^e. 2, I prefer increasing their diameter, and shorten the stroke of the pistons, and have these latter linked to a horizontal lever beam F, having its fulcrum *f* in the forked top of the standard B¹, so as to allow the operator, the apparatus being placed with its bed plate B on the floor, to work the same 25 by pressing with his feet alternately on each end of the beam F, in order alternately to depress one piston, and cause the opposite one to rise. The pistons should be made to fit exactly in their respective cylinders either by an elastic packing or other means. Each cylinder is provided with an air valve H, represented separately respectively in top and in sectional views in the Figures 4, 30 5, 6, viz., in the two latter, deprived of the strip *g* of india-rubber that fits over the central or air passage *h* of the valve, round which passage *h* is made a furrow or concentric circular groove *j*, so as to allow the elastic strip *g* exactly to apply itself against the projecting narrow ring *i* left protruding between the air passage *h* and the groove *j*, so as to offer a perfect closure, and prevent any coagulated 35 blood or other similar matters to remain on the narrow edge of the ring *i* between this edge and the strip *g*. A valve N, Figs. 7 and 8, arranged in the same manner, but of smaller size, fits between the ajutage N¹ of each cylinder A and the end of the tube C, by which the cylinders are connected to their

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respective cupping glasses, which latter differ from the ordinary cupping glasses, in so far that they are provided at the top with a tubular ajutage for the other end of the tube C to fit on, so as to allow of exhausting the air from the glass. The tubes C are, by preference, of india-rubber, or any other
5 suitable flexible material. For causing a suitable re-introduction of air to take place in the glasses after each exhausting, and allow of properly regulating the quantity of air to be re-introduced therein, each tube C is provided with a small boss K, represented separately, and partly cut off in Fig^e. 9; this boss has a screw-hole made therein, in which fits a screw L, provided along its
10 length with an angular slit or furrow *p*, of the shape shown in Fig^e. 9, and in such manner, that in consequence of the screw L being screwed more or less deep into the boss K, the slit *p* will leave a more or less wide opening for the outer air to pass into the boss K, tubing C, and the cupping glass connected thereto, whilst the slit hole is small enough not to interfere with the exhausting
15 effect of the air-pump. In order to prevent the blood or other coagulable matters of choking up the tubes C, a small strainer (shown separately in sectional view in Fig. 10,) and consisting of a small cylinder *n*, provided at the inside with a double cone *m* of wire gauze or other suitable straining material, fits into the tube C towards the end of this latter, where the same is
20 applied to the ajutage of the cupping glass so as to allow of occasionally withdrawing the said strainer, and clean the same.

The mode of working the apparatus will be readily understood; each tube C having been fitted to a cupping glass and to its respective cylinder A, the cupping glasses are applied to that part of the body from which blood or
25 other liquid is to be abstracted, the skin of this part having been previously suitably scarified in case blood is intended to be drawn off. The pistons D are now alternately to be lifted or pressed down, or worked forward and backward by means of the lever F, whilst the quantity of air to be re-introduced after each exhausting stroke of the piston is regulated by screwing the
30 screw L more or less deep into the boss K. At each time air is exhausted from its respective cupping glass by one of the pistons D; a partial vacuum will be formed in this glass, in consequence of which the skin underneath the same will be lifted into the glass, while blood or other liquid will pass into the glass through the scarifications or the pores of the skin, or through the
35 capillary opening of an exploring needle introduced in the body, and protruding through this part of the skin, whilst at each return stroke of this piston a small quantity of air will be re-introduced into its cupping glass, so as to decrease the partial vacuum therein, in consequence of which the skin will be depressed, and in this mode the alternate lifting and depressing, or

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expanding and contracting of the skin obtained, thus preventing the choking up of the pores, scarifications, or other capillary openings through which the blood or other liquid will consequently be allowed to flow into the cupping glasses; after a glass is thus sufficiently filled, the same is removed and replaced by another. 5

Having thus described and particularly ascertained the nature of the Invention, and the manner in which the same is or may be put into practical effect, I wish it to be understood that I do not intend to restrict or restrain myself to the precise details of the apparatus above described, as many variations may be made therefrom without deviating from the main principle 10 of the Invention; but what I consider to be novel and original, and therefore claim as the Invention secured to me by the herein-before in part recited Letters Patent, is, drawing off or abstracting blood or other fluids from the human or animal body by means of a suitably constructed cupping glass or glasses in combination with an air pump or other similar apparatus, and 15 arranged in such manner that an alternate lifting and depressing, or expanding and contracting of the skin of that part of the body to which the said cupping glass or glasses are applied is to take place, with the object of preventing the choking up or obstruction of the pores, scarifications, or other capillary openings through which the blood or other fluids to be abstracted from the 20 body are to flow into the said cupping glass or glasses.

In witness whereof, I, the said Alcidalis Auguste Romain Damoiseau, have hereunto set my hand and seal, this Second day of February, in the year of our Lord Eighteen hundred and sixty-two.

A. A. R. DAMOISEAU. (L.S.) 25

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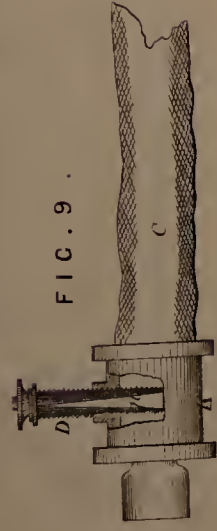


FIG. 9.

FIG. 1.

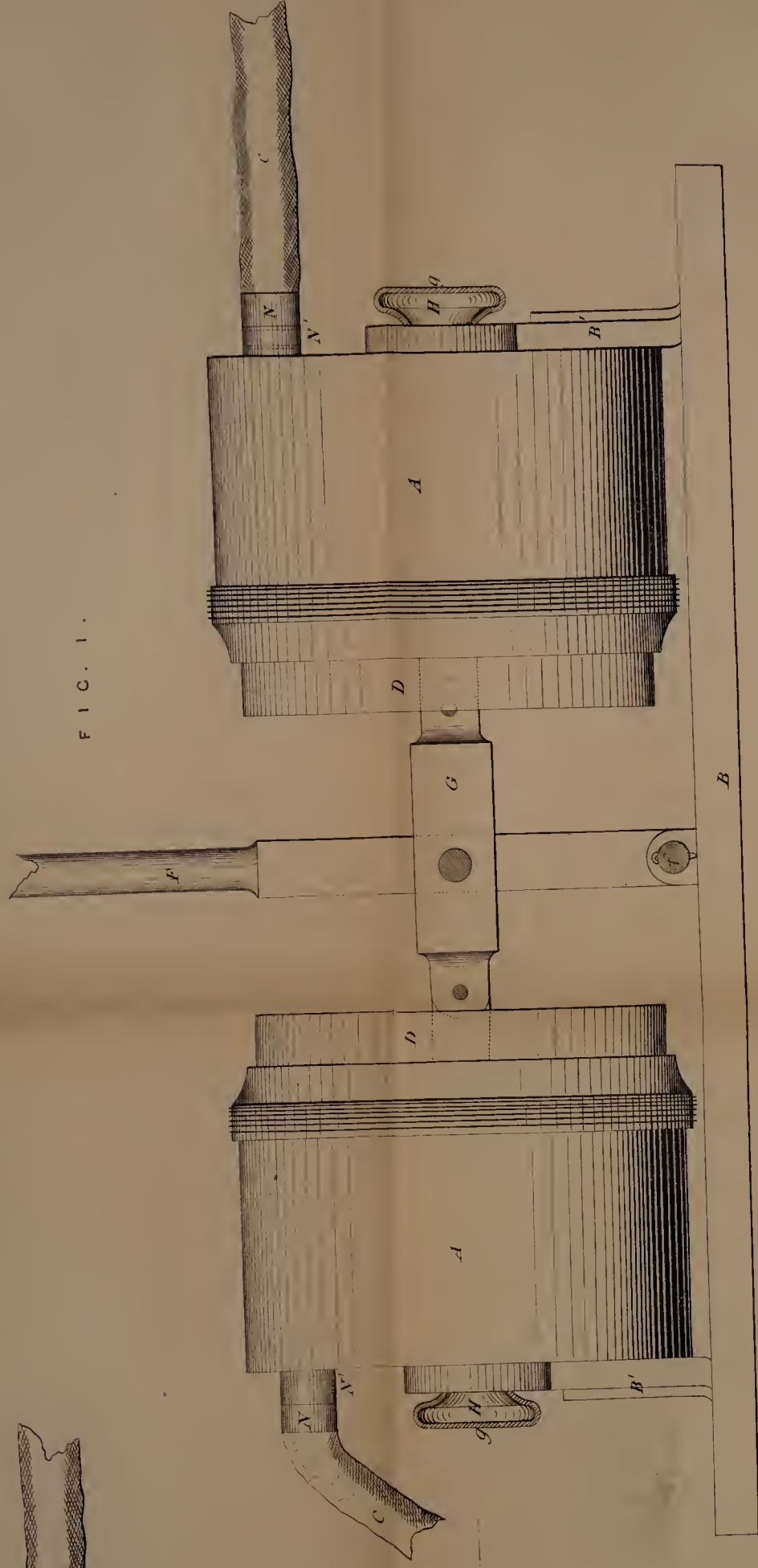


FIG. 4.



FIG. 6. FIG. 5.

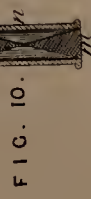
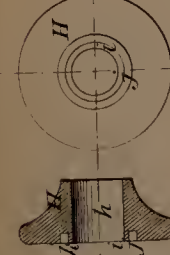


FIG. 10.

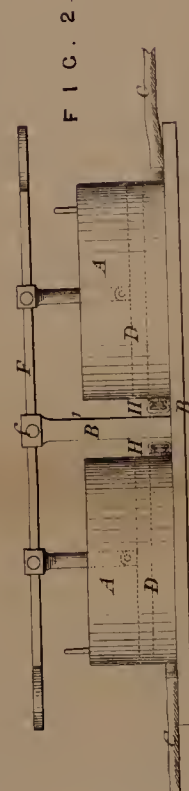


FIG. 2.

